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ABSTRACT

The years after children demonstrate comprehension of particular syntactic structures have received little attention. What happens in language development after mastery is achieved? Are children then like adult speakers in judging the acceptability of grammatical structures? Questions addressed in this research were: Will older children and young adolescents, comprehending a structure, also judge it acceptable? Will judgments of acceptability and unacceptable elements be determined by Ss' age? Will judgments be under control of the type of psychological complexity built into the stimuli? Sentences were of the form, "The girl promises the boy to feed the dog"; 5 reflected and 5 contradicted the logical relations Ss considered most likely. Ss in grades 4 through 8 (12 per grade) individually heard all sentences, answered comprehension questions, evaluated the items' acceptability, and identified unacceptable elements. Comprehension was clearly demonstrated. Expectation (i.e., whether sentences reflected or contradicted the most likely logical relations), but not grade, affected judgments of acceptability. Four categories of unacceptable elements resulted: structure, agent, the verb "promise," and verb tense. Relative frequencies differed between levels of expectation and among the grades. Implications are related to developmental trends among older children, the multi-dimensional nature of expectations, and stimulus materials in future research. (Author)

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What's Wrong With Complex Sentences?
Children's Judgments of Unacceptable Elements[1, 2, 3]

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Introduction

When children serve as subjects in psycholinguistic studies, the criterion of interest is typically their imitation, comprehension, or production of a given linguistic structure. Similarly, when adults serve as subjects, the criterion is often their judgments regarding the grammaticality or acceptability of a given structure. Investigations of these criteria have yielded a great deal of interesting and provocative information about language processes. However, psycholinguists, not unlike other developmental psychologists, have tended to overlook the late childhood and early adolescent years. Curiosity has often been satisfied once a child demonstrated mastery, usually defined in terms of comprehension, of a particular syntactic structure. And, adults' linguistic judgments were usually sought only when the purpose was to refine or to contradict an aspect of the theory of generative grammar.

What does happen during those years after masterv is achieved? Are children then like adult speakers in their judgments of the acceptability of particular grammatical structures? Are there developmental stages between comprehending a structure and considering it to be acceptable? If there are

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discernible points in the transition, what types of factors affect one's movement from point to point?

Purpose

The present study was an investigation of one type of sentence which is derivationally complex and which has been shown to be psychologically complex as well, given the criteria of both comprehension (Chomsky, 1969; Gowie, 1974; 1976 b; Gowie and Powers, in press) and acceptability to the native speaker (Gowie, in preparation). Sentences of the form, "The girl promises the boy to feed the dog" have an atypical and complex syntactic structure, and they constitute the only exception to a general pattern in English described by the Minimum Distance Principle (Rosenbaum, 1967).[4]

Children usually master this complex syntactic structure by about age 10 or 12 (Chomsky, 1969; Gowie, 1974), but not usually before approximately age 7, given an exclusively verbal mode of presentation and response (Gowie, 1976 b). The period of transition, when children are gaining competence with this structure, was the focus of this research.

Two sources of complexity were incorporated in the stimulus materials: linguistic or derivational complexity, reflected in the syntactic structure of the sentences, and psychological complexity, reflected in the logical relations (agent - indirect object - action). The logical relations were of two types, either harmonious with, or contrary to, children's expectations regarding the most common or usual actor - indirect object - action combinations.

Background

This particular investigation is part of a longitudinal study of language development which began when the children were in grades 1 through 5. The research reported here was conducted when they were in grades 4 through 8. In the first 2 years, children's comprehension of this syntactic structure was significantly affected by expectation: comprehension of items harmonious with expectation was greater than that of items contrary to expectations (Gowie, 1974; Gowie and Powers, in press). In the second year, however, comprehension scores were reaching the maximum, and by the third year so few comprehension errors occurred that there was essentially no variability in that aspect of the data.

The children's "mastery" (i.e., comprehension) could have been viewed as a signal that it was time to find a new and still more complex structure to study. Instead, this seemed to be an ideal time to investigate language processes that might be more complex than comprehension, rather than language structures more complex than the Minimum Distance Principle. Therefore, in addition to comprehension, 2 other types of measures were obtained. Children were asked to judge the acceptability of the sentences and to tell which elements, if any, were unacceptable, and they were asked to rephrase the sentences, retaining the meaning, but stating the sentences as clearly and naturally as possible. The identification of unacceptable elements is the focus of this paper.

Problem

The research question addressed in this study was:

Will individuals who demonstrate comprehension of a complex syntactic structure also judge it to be fully acceptable? Further,

a. Will judgments of acceptability and of unacceptable elements (if any) be determined by the age of the individuals?

b. Will these judgments be under control of the type of psychological complexity built into the stimulus materials?

Procedures

Male and female subjects in grades 4 through 8 heard and viewed 10 sentences with atypical syntactic structures. Five sentences reflected previously identified expectations, or agent - indirect object - action relations, ("harmonious," e.g., "The mother promises the father to get dinner ready"), and 5 contradicted those expectations ("contrary," e.g., "The father promises the mother to wash the floor"). Stimulus materials were individually administered. Responses were transcribed by the experimenter.

Sample

The experimental sample consisted of 60 male and female children, with 12 each in grades 4 through 8. No child who had ever been retained in grade or who had ever received remedial instruction from a reading specialist or a speech therapist was included. The children attend an parochial school and 3 public schools in the same socio-economic region of a suburban centralized school district. Residents of this community are speakers of standard English.

Materials

Sentences were classified as harmonious or contrary according to the expectations that were most consistent over the previous 3 years. From a pool of 40 items 10 were selected because children's expectations about the logical relations (i.e., agent - action) were most stable. The 40 items were of the form: "Who would usually get dinner ready in most families--mothers or fathers?" Using the 10 most stable agent-action combinations, 5 sentences were classified as harmonious and 5 as contrary. For example, children consistently thought that boys rather than fathers would shoot squirtguns. Thus, the sentence, "The boy promises the father to shoot the squirtgun" would be harmonious, whereas the alternative form, "The father promises the boy to shoot the squirtgun" would be contrary to that particular expectation.

Thus, all 10 sentences were linguistically complex, having an atypical syntactic structure which constitutes the only exception to the general pattern in English described by the Minimum Distance Principle, and, of the 10, 5 were high in psychological complexity (contrary to expectation) and 5 were low in psychological complexity (harmonious with expectation).

Method

Each subject was tested individually. He or she heard, and was also allowed to look at, 10 sentences violating the Minimum Distance Principle, e.g., "The girl promises the boy to feed the dog." After the presentation of each item, the child answered a comprehension question, e.g., "In that sentence, who

feeds the dog?" Each child then evaluated the acceptability of the sentences in terms of whether they "sounded right" and resembled everyday speech. Next, subjects were asked to identify any aspect of the sentences that was unacceptable. Finally, they were instructed to rephrase each sentence, retaining the meaning and stating it as clearly as possible.

Results

Collapsing over the dimensions of grade and expectation, 600 measures were analyzed, disclosing: (a) comprehension at a level of 99%; (b) judgments of overall grammatical acceptability at 47%; and (c) decisions that there were no unacceptable elements in the stimulus sentences at 31 %. Expectation was a significant effect in all cases, with harmonious sentences being less disturbing.

Grade was not a significant effect in determining judgments of acceptability. However, expectation did affect these judgments: overall, more harmonious sentences were considered acceptable, $F(1, 55) = 57.26$, $p < .001$. Thus, the extra-linguistic variable defined by children's role expectations was found to influence decisions regarding the acceptability of sentences.

Children's responses yielded 4 categories of unacceptable elements: structure (22%), agent (46%), verb tense (12%), and the promise itself (20%). Relative frequencies were significantly different in the harmonious and contrary conditions, but not among the 5 grades. Generally, in the harmonious condition, the promise was the most disturbing element. Children did not think that people would promise to carry out some of the tasks, but would simply complete them or say that they would. "The child

promises the teacher to go outside to play" was often unacceptable for this reason. Many subjects stated that children would want to go out, and indicated that they would promise only if the action required were undesirable.

In the contrary condition, the agent was the most unacceptable element for all but the seventh graders, who objected more to the structure. The result that the agent was the most disturbing aspect of the contrary sentences provides further substantiation of the fact that expectation has psychological reality in children's processing of sentences. The agent in the contrary condition was more unacceptable than all aspects of the harmonious condition combined, as well as being more unacceptable than all other aspects in the contrary condition.

No statistically significant differences were found between the harmonious and contrary conditions or among the 5 grades with respect to the unacceptability of either structure or tense. Subjects who were bothered by tense--the present--were disturbed by the implication of ongoing action. Generally they preferred the imperfect or, rarely, the present perfect or past perfect.

Discussion

Older children and young adolescents, who do comprehend this derivationally complex structure, still do not find it acceptable. Thus, judging a complex grammatical structure to be acceptable may be a more difficult and advanced aspect of language development than is comprehending sentences of that same structure. Furthermore, the reasons why subjects found the sentences unacceptable were related not only to syntax (structure and tense), but also to cognitive and semantic

constraints (agent and the verb promise).

Expectation was found to be multi-dimensional. Subjects had expectations about probable agents for specific actions, about situations in which people would be likely or unlikely to make promises, and about which people would make promises. Also, they thought certain substitute verbs (e.g., ask, tell, say) were more appropriate to the propositions in the stimulus sentences. All of these dimensions of expectation affected subjects' judgments of acceptability, but no longer affected comprehension in this age group. Thus, the role of such psychosemantic constraints as expectation in language performance changes with the maturity of the individual.

Finally, the results have implications for the construction of stimulus materials in future research. This type of sentence has been investigated quite often in studies of children's acquisition of syntax. However, certain non-syntactic aspects of these sentences are disturbing to children in grades 4 through 8. Thus, care should be taken to design materials controlling for the non-syntactic aspects of children's expectations so that these factors do not confound the results regarding the acquisition of syntax itself.

Footnotes

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2. The author is grateful for the continued cooperation and participation of St. Pius X School, Loudonville, New York, and of North Colonie Central Schools, Newtonville, New York.

3. This paper was presented at the 16th meeting of the Southeastern Conference on Linguistics, Greensboro, North Carolina, March 25-26, 1977.

4. The Minimum Distance Principle states that, in a sentence of the form

NP_1	vb	NP_2	to	inf vb
noun $phrase_1$	verb	noun $phrase_2$	to	infinitive verb

(The girl tells the boy to feed the dog.)

the second noun phrase, as the one closer to the infinitive, is the noun which carries out the action indicated by the complement verb. Most verbs which can be used in sentences of this form, e.g., command, persuade, require, tell, urge, want, follow the Minimum Distance Principle. However, the verb promise is always an exception to this Principle. When promise is inserted in a sentence of this form, the first noun, rather than the second, is the subject who will carry out the action indicated by the infinitive.

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